040092-009410US
Daniel Mao, Reg. No. 51,995
Telephone: 650-326-2400
Title: Waveguide-Based Optical Interferometer
Inventors: Raymond Mark Bell et al.
Sheets of drawings 1 of 18

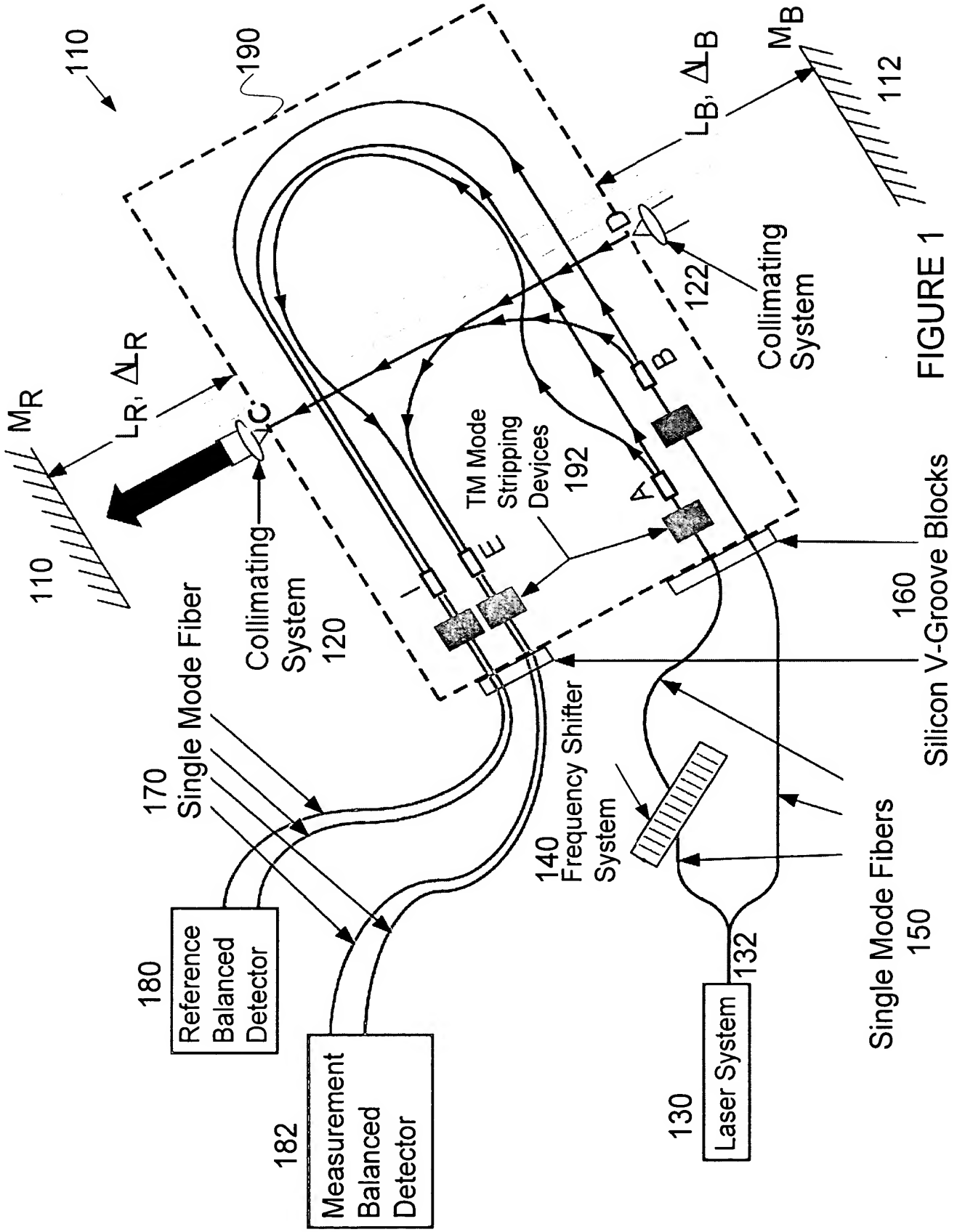

FIGURE 1

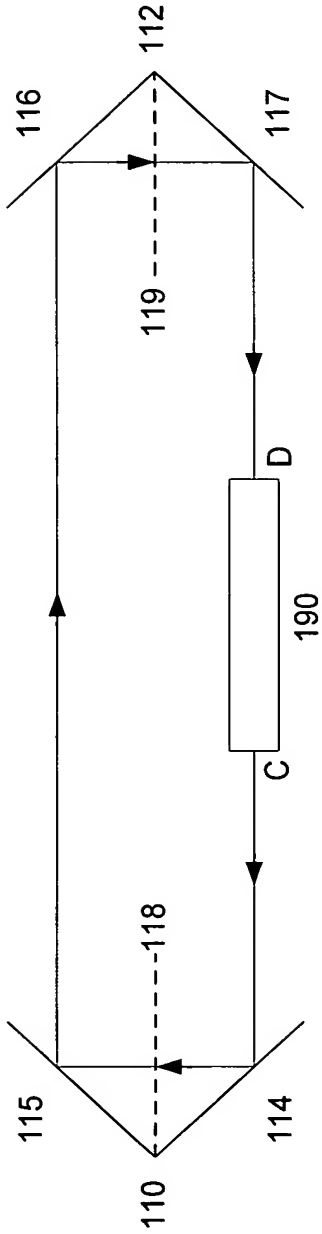

Fig. 1A

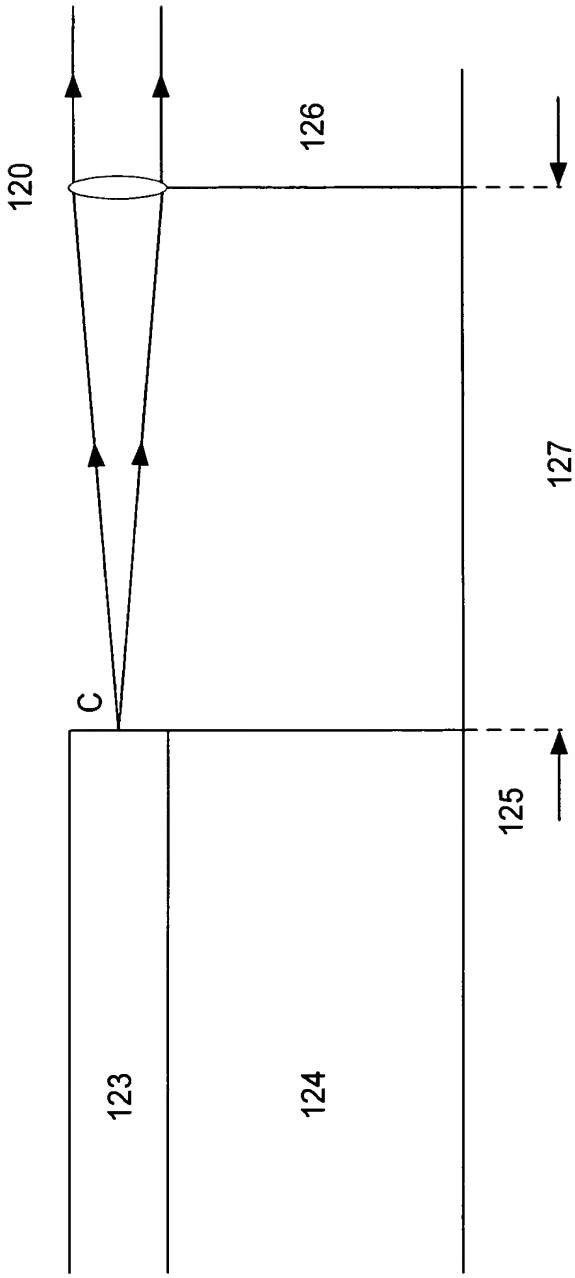

Fig. 1B

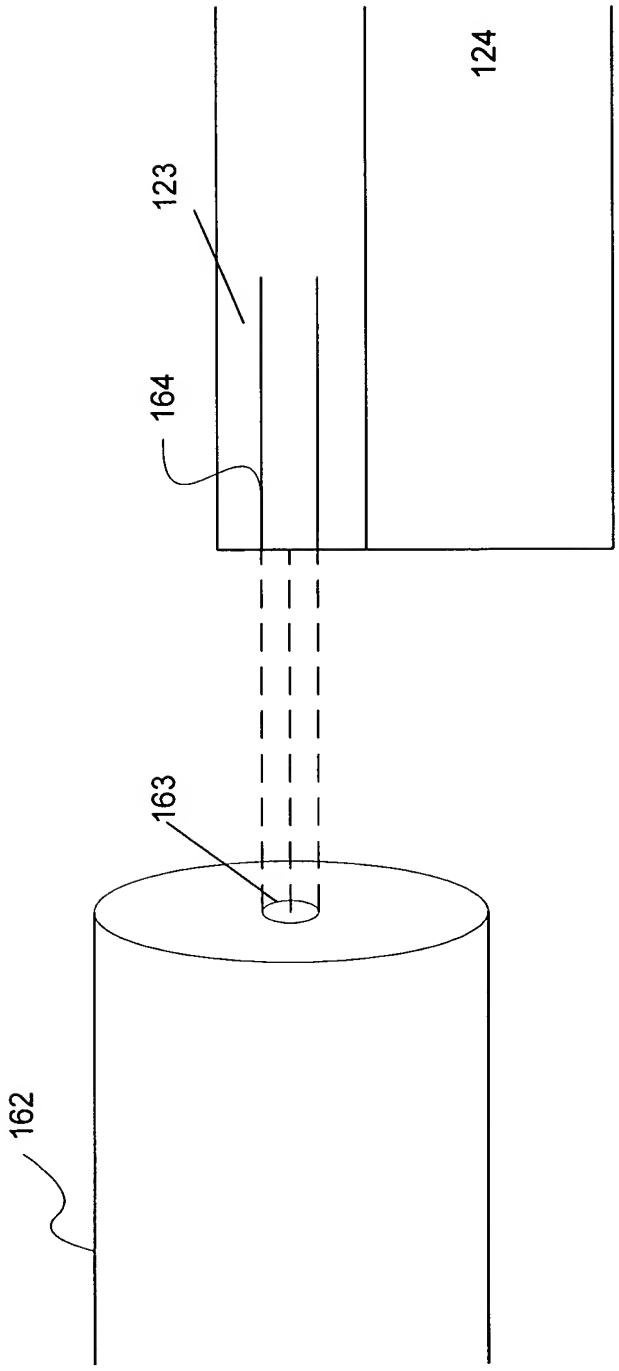

Fig. 1C

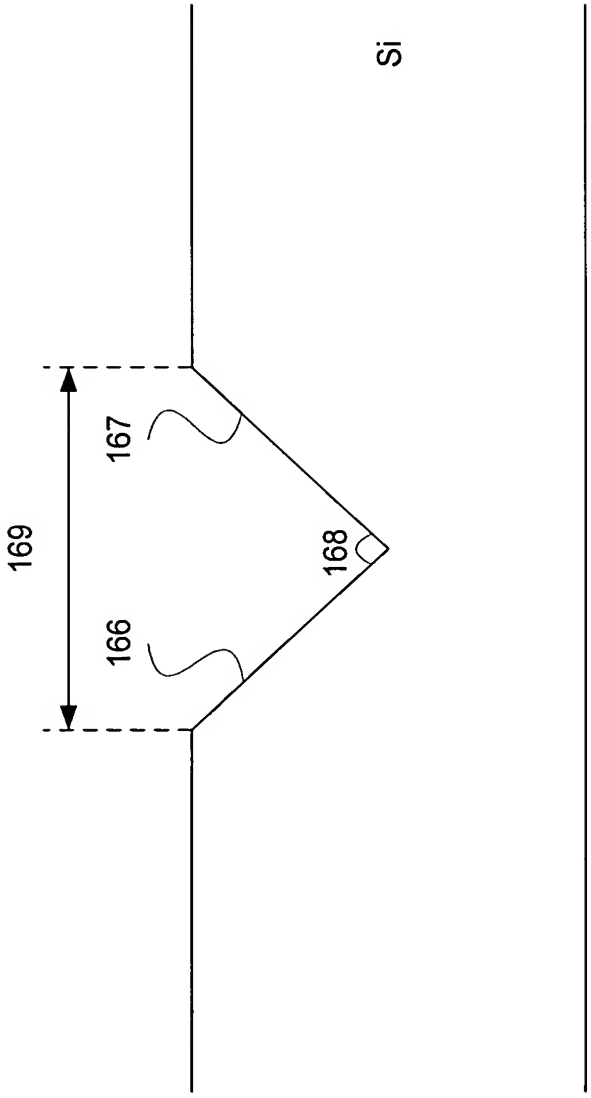

Fig. 1D

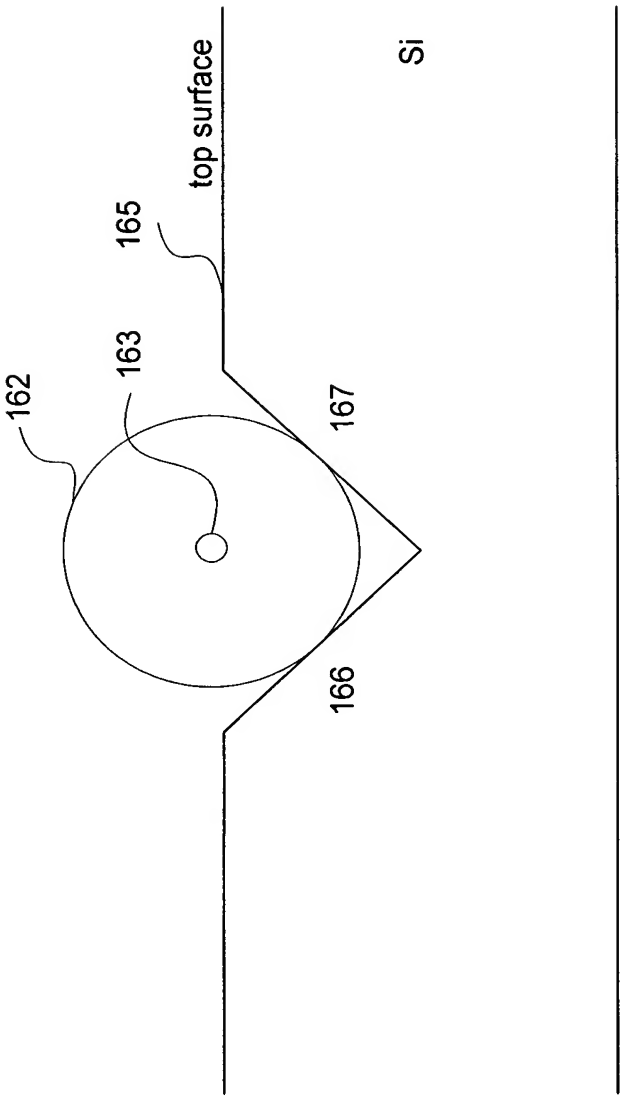

Fig. 1E

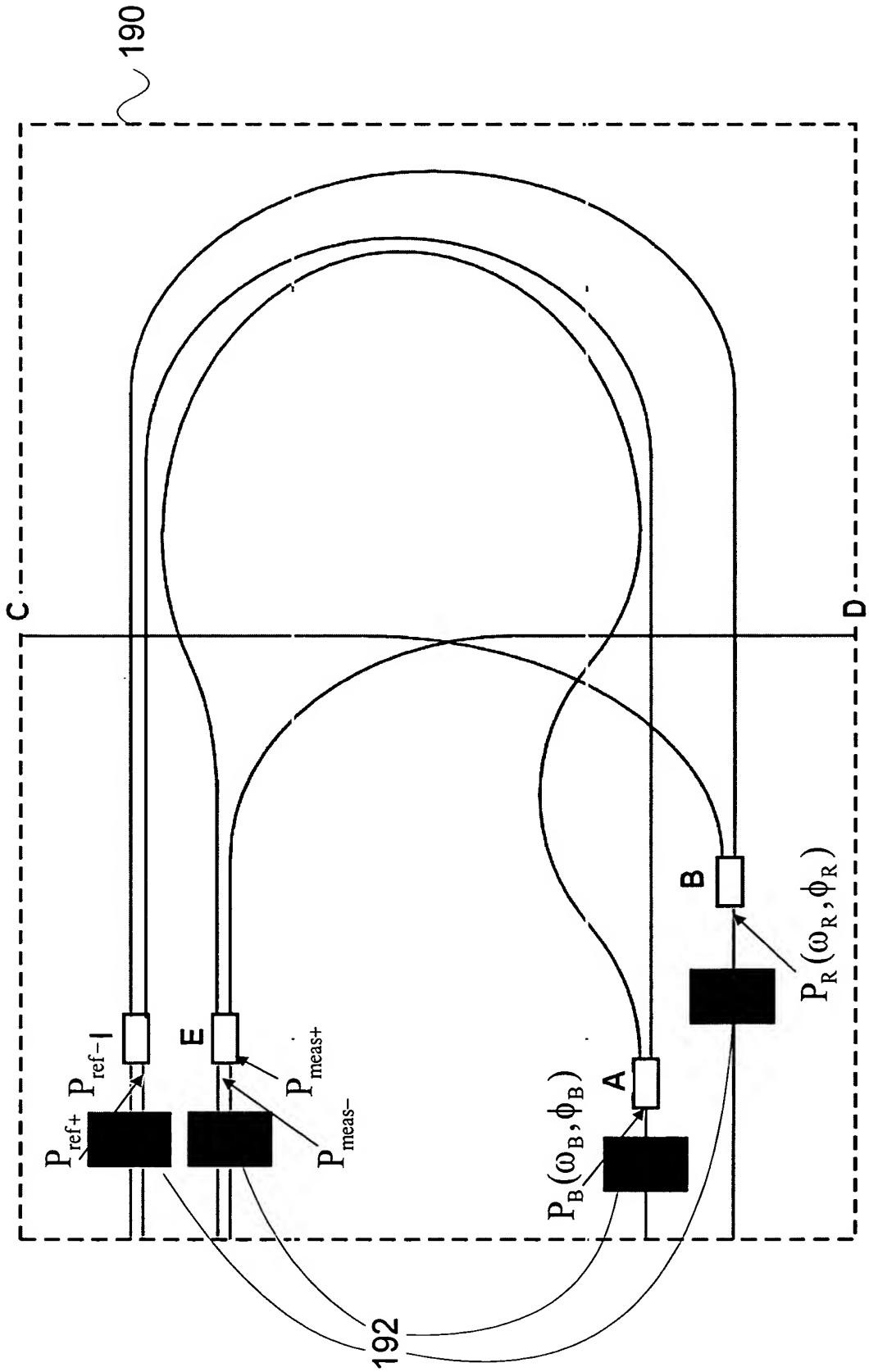
190
C
D
E
A
B
P_{ref+}
P_{ref-}
P_{meas+}
P_{meas-}
$P_B(\omega_B, \phi_B)$
$P_R(\omega_R, \phi_R)$
192

FIGURE 2

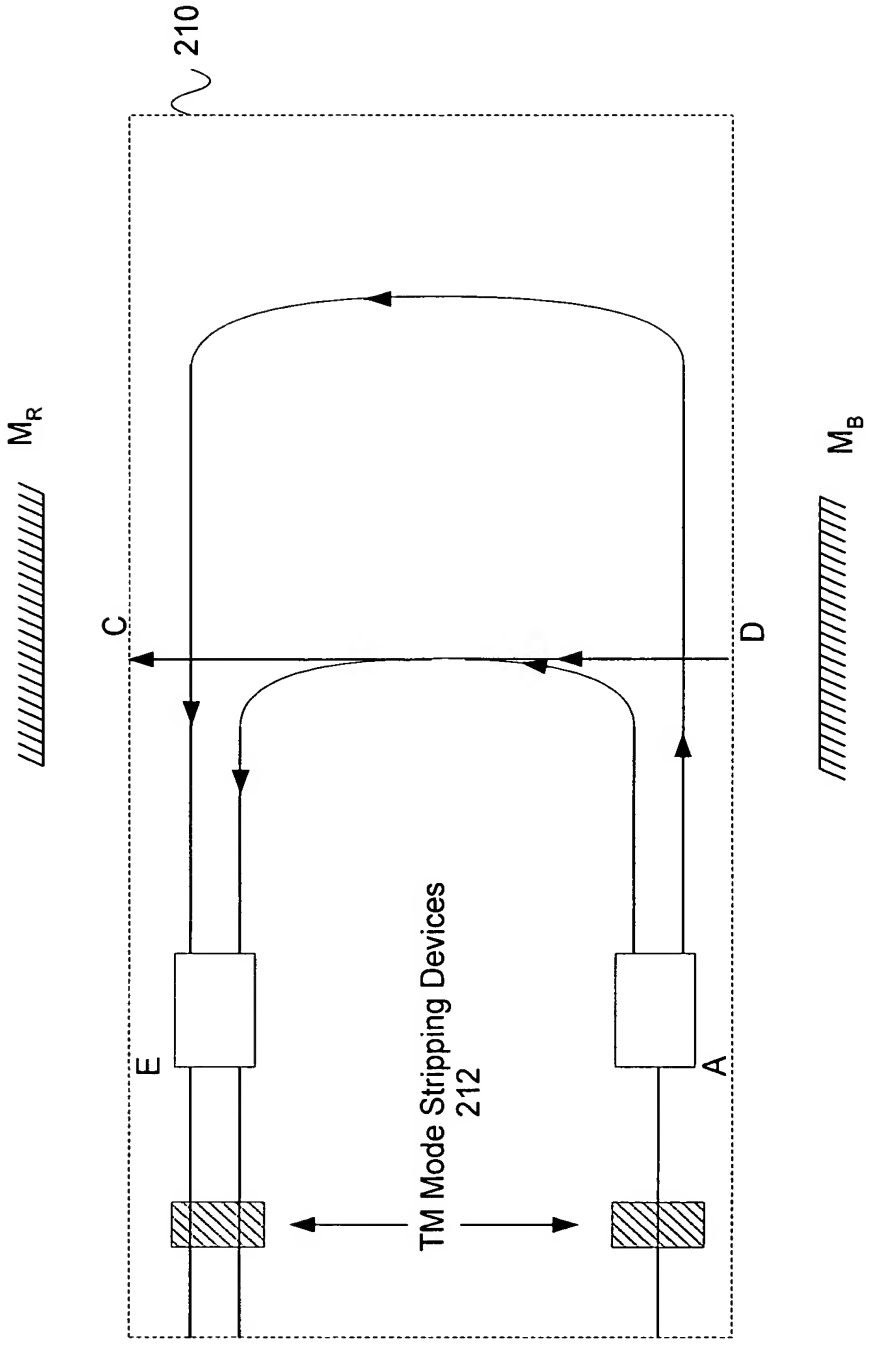

Fig. 2A

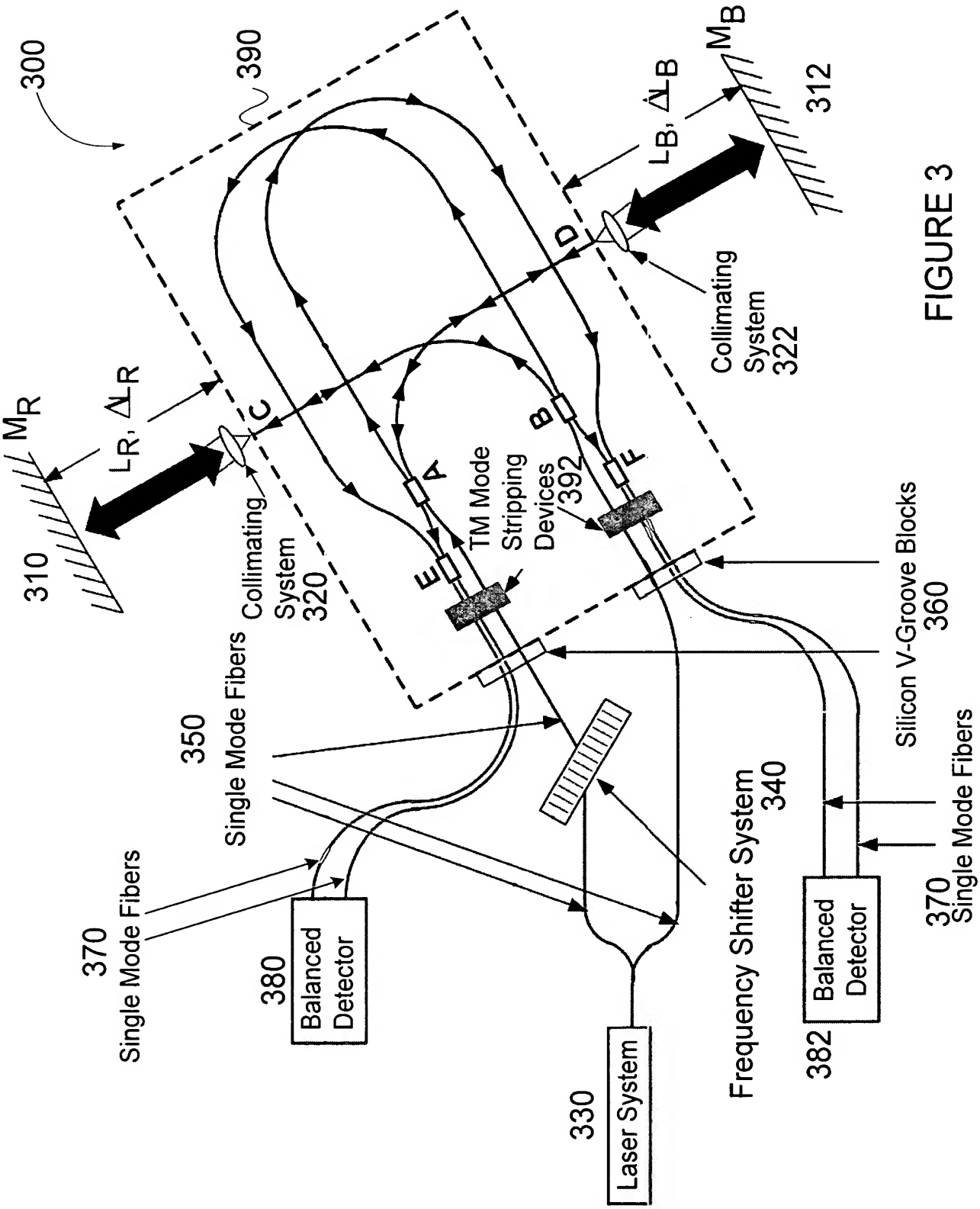
300
390
M_B
$L_B, \Delta L_B$
312
D
Collimating System 322
M_R
$L_R, \Delta L_R$
C
B
A
F
E
TM Mode Stripping Devices 392
310
Collimating System 320
Silicon V-Groove Blocks 360
350
Single Mode Fibers
370
Single Mode Fibers
380
Balanced Detector
Frequency Shifter System 340
330
Laser System
382
Balanced Detector
370
Single Mode Fibers

FIGURE 3

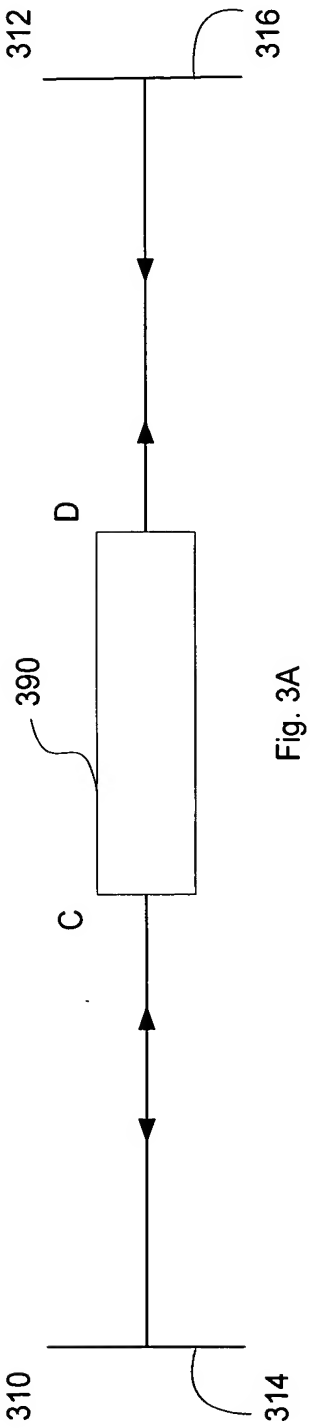

Fig. 3A

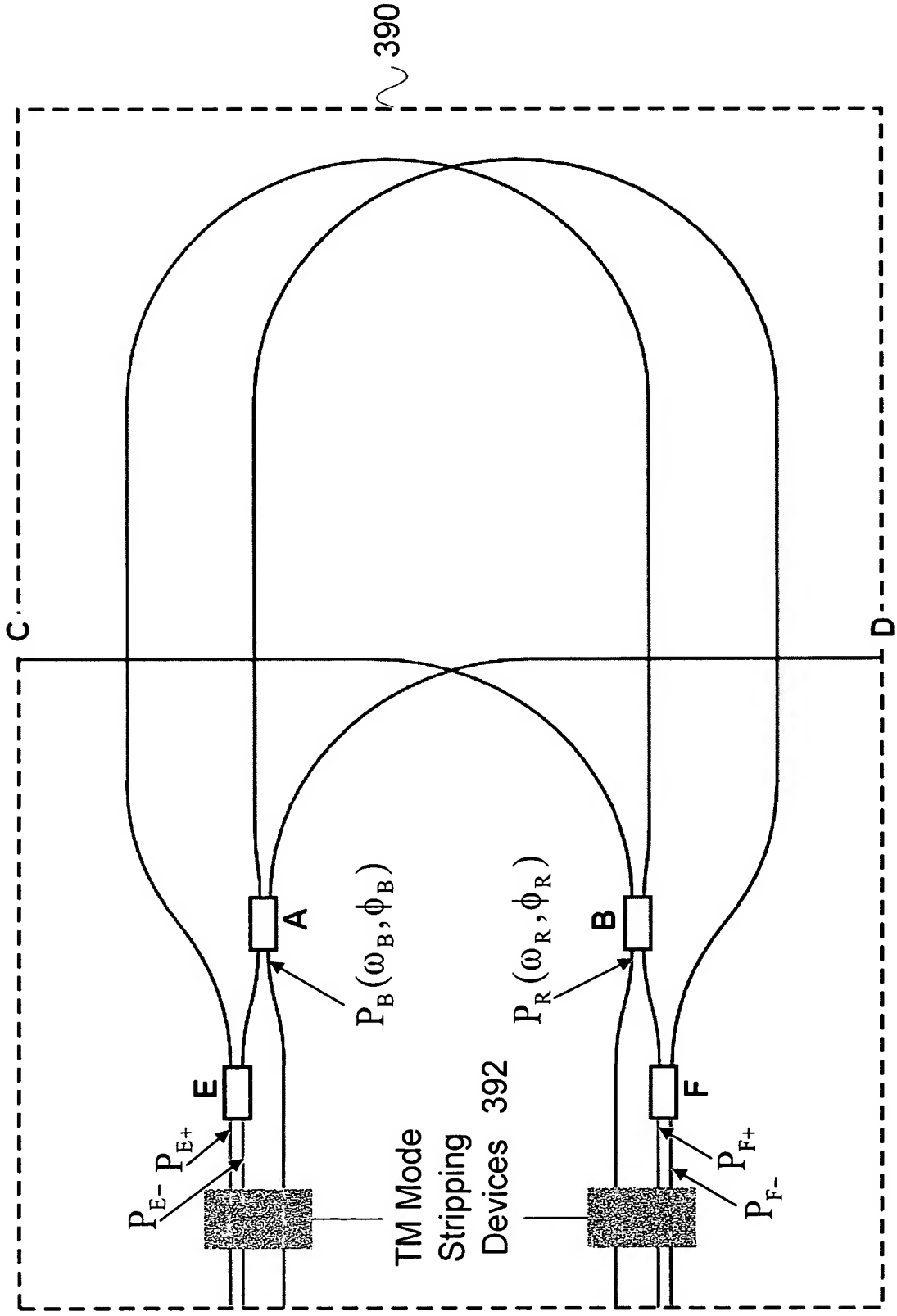
390
C
D
A
B
E
F
$P_B(\omega_B, \phi_B)$
$P_R(\omega_R, \phi_R)$
P_{E-} P_{E+}
P_{F+}
P_{F-}
TM Mode Stripping Devices 392

FIGURE 4

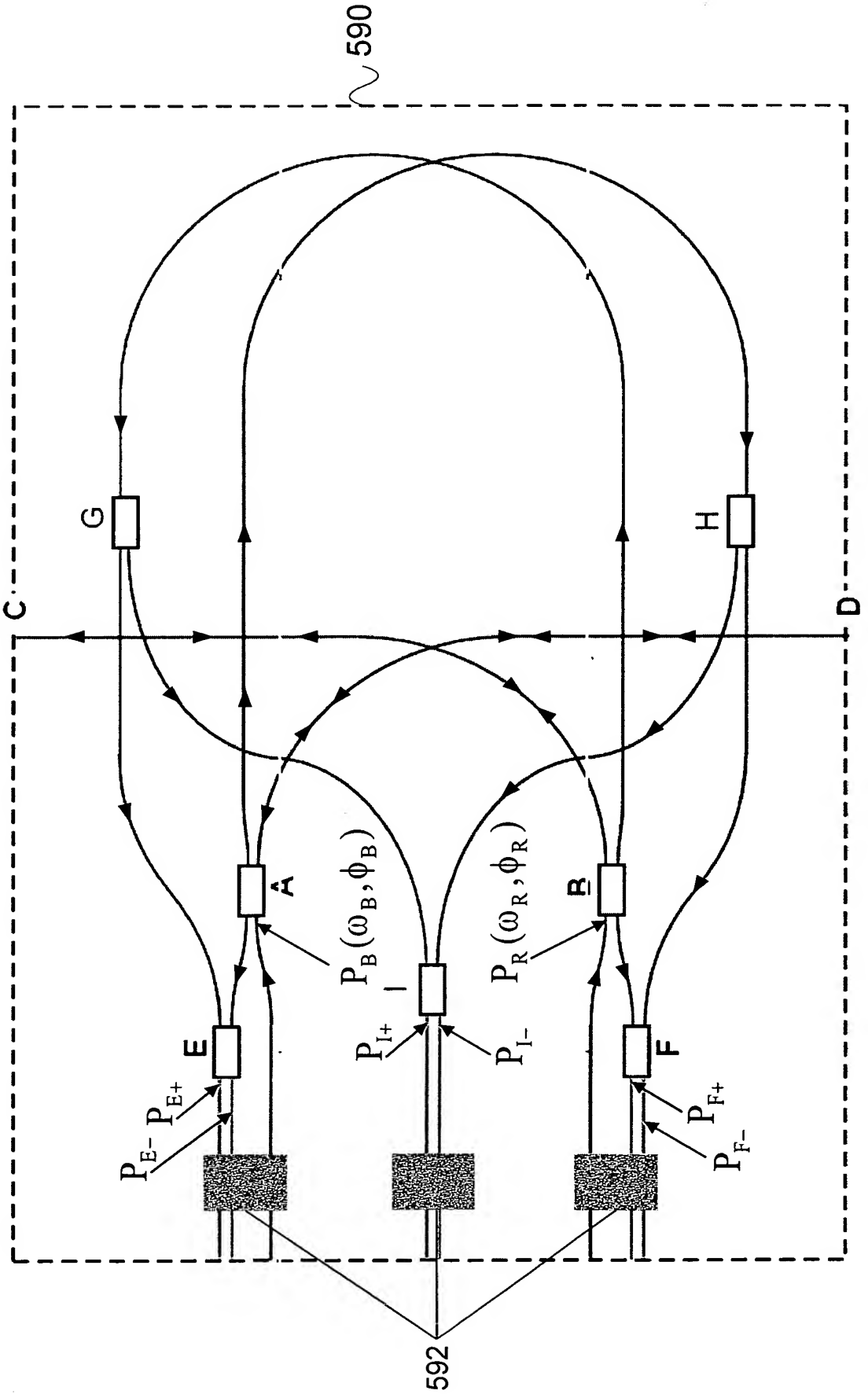
590
C
D
G
H
A
B
E
F
I
$P_B(\omega_B, \phi_B)$
$P_R(\omega_R, \phi_R)$
P_{I+}
P_{I-}
P_{E+}
P_{E-}
P_{F+}
P_{F-}
592

FIGURE 5

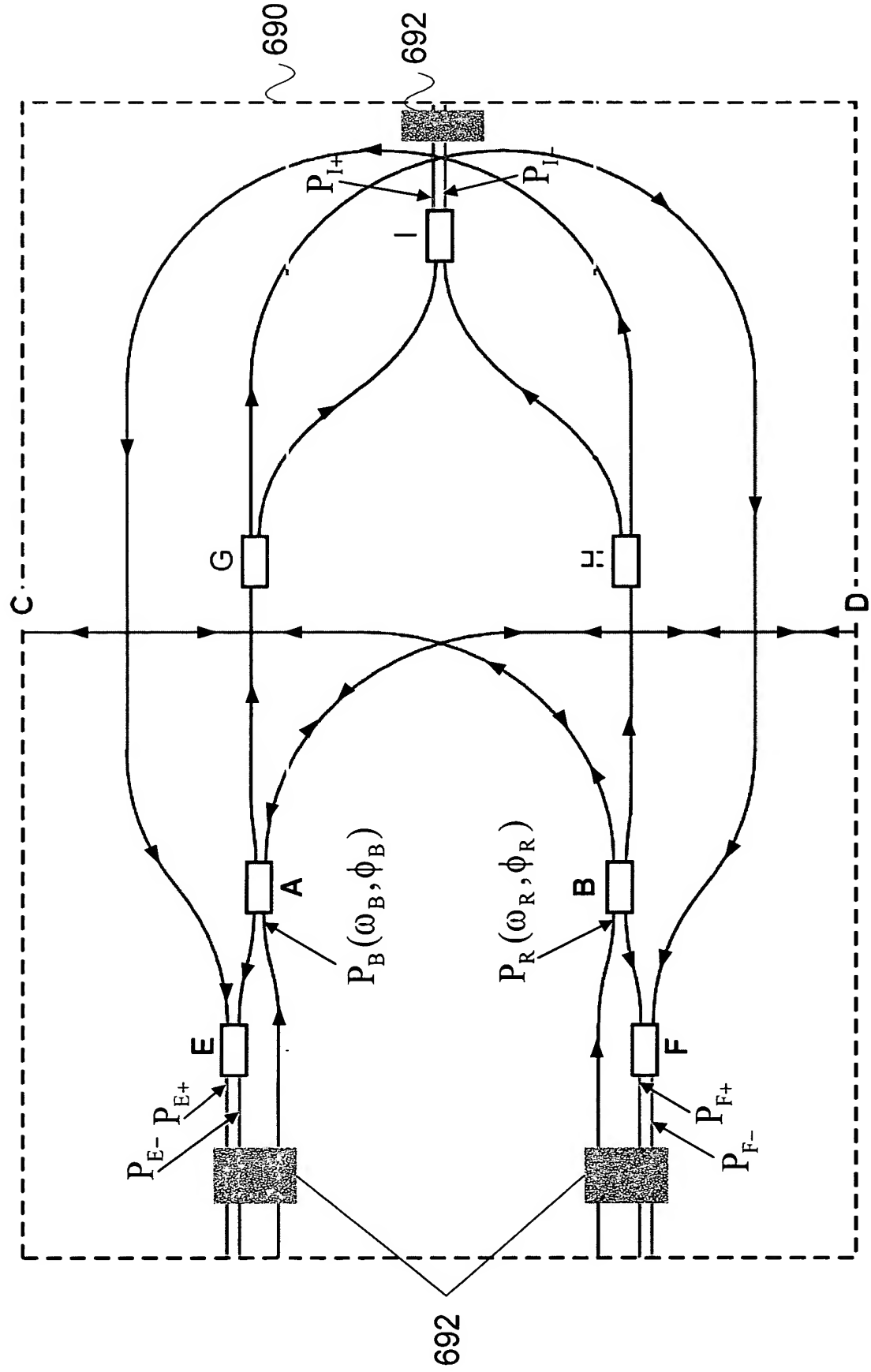
690
692
P_{I+}
P_{I-}
I
G
H
C
D
A
B
$P_B(\omega_B,\phi_B)$
$P_R(\omega_R,\phi_R)$
E
F
P_{E-} P_{E+}
P_{F+}
P_{F-}
692

FIGURE 6

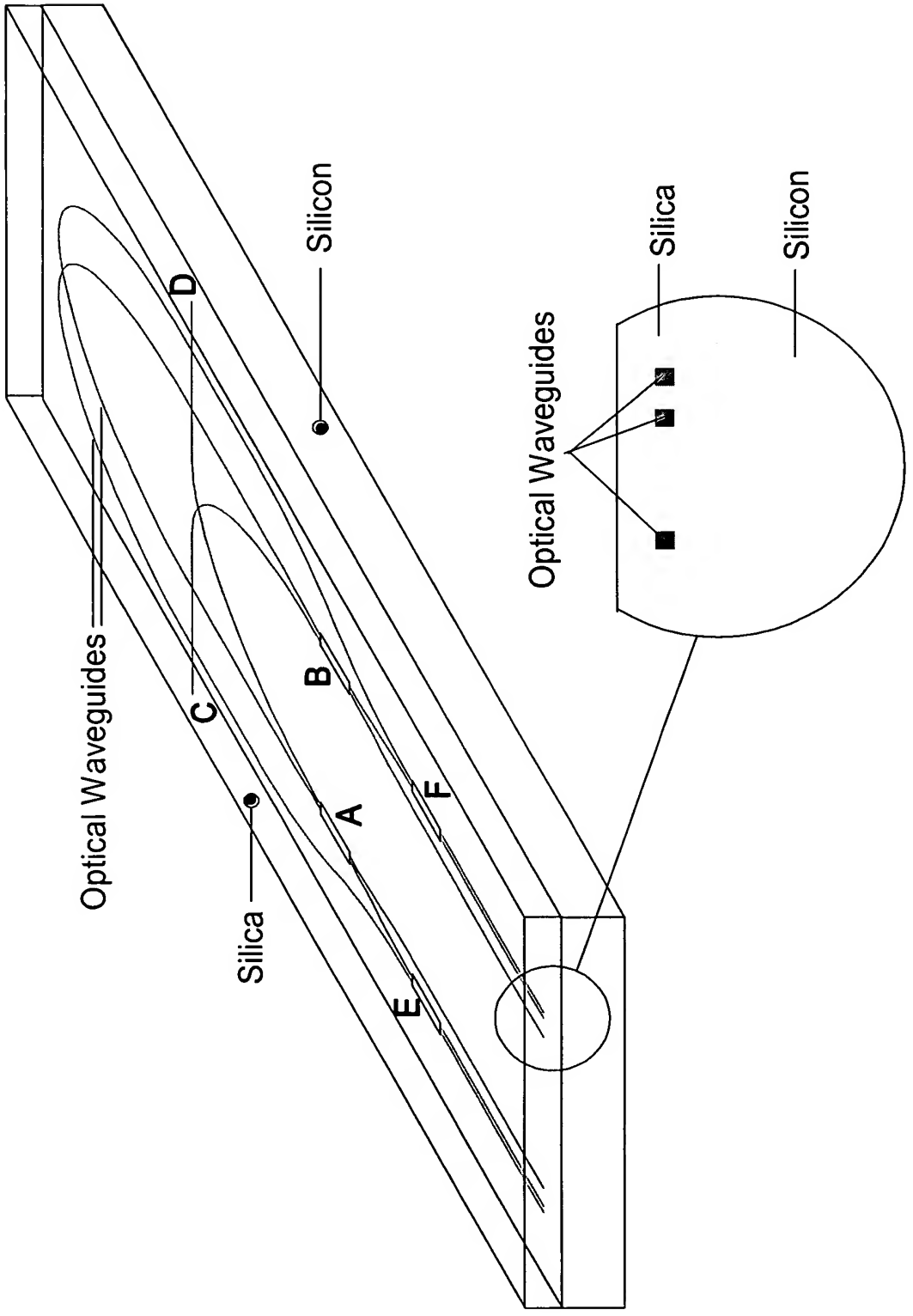
Optical Waveguides
Silica
Silicon
A
B
C
D
E
F
Optical Waveguides
Silica
Silicon

FIGURE 7

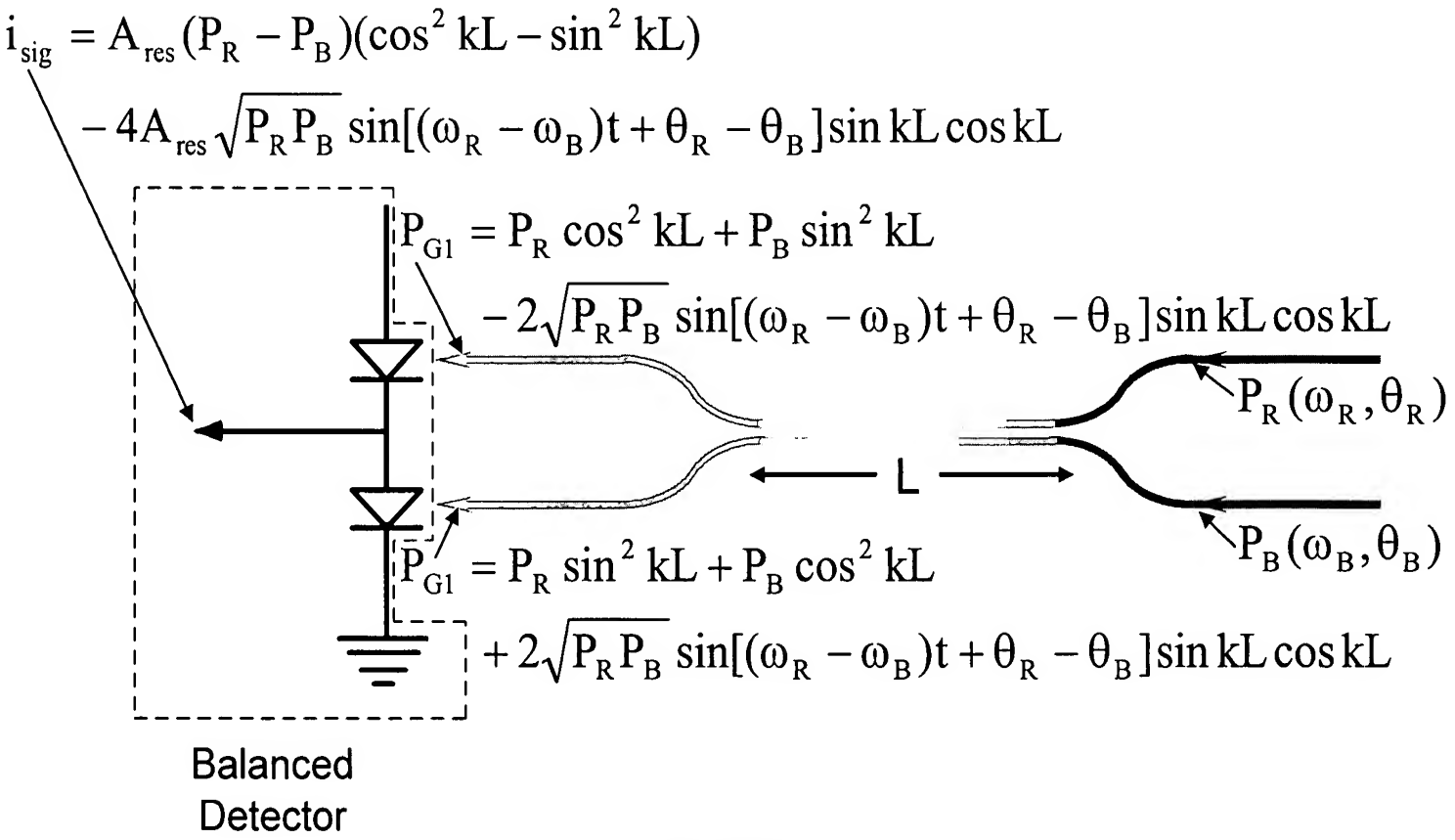

FIGURE 8

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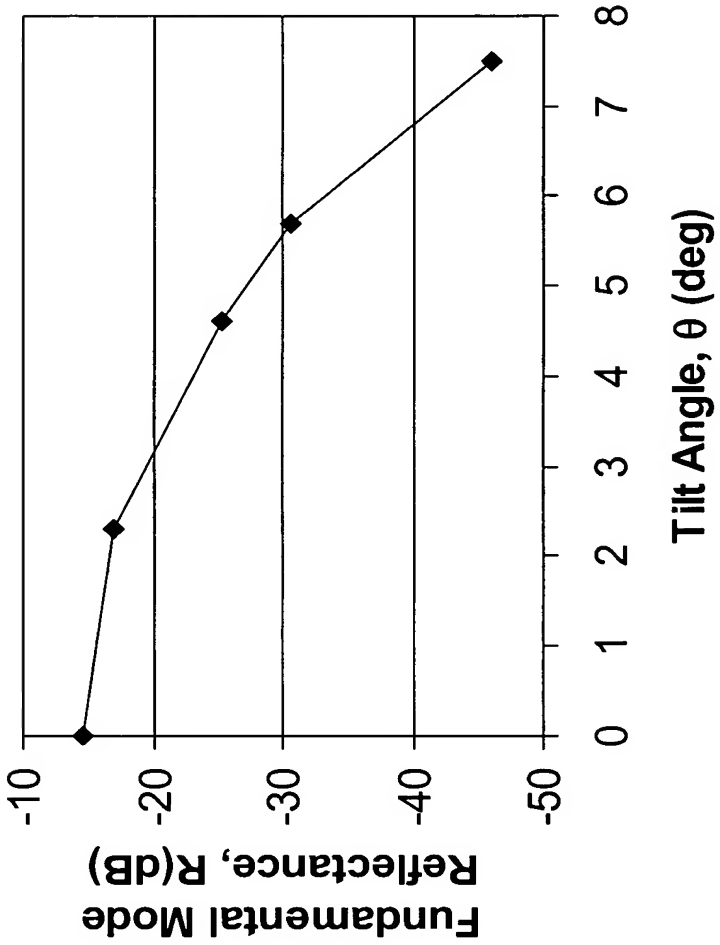
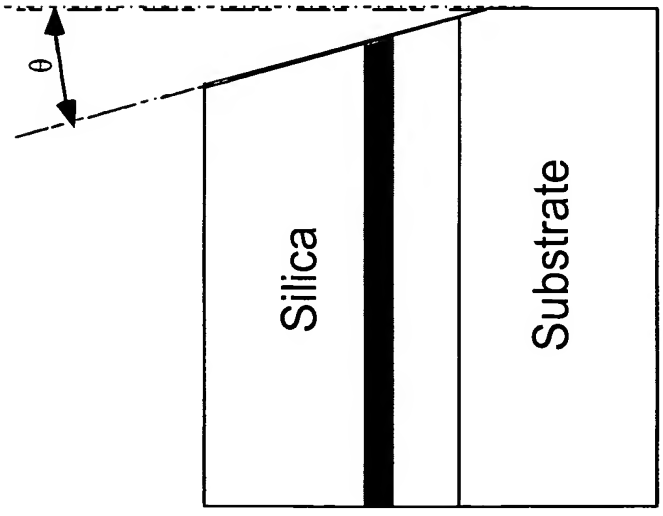

Fundamental Mode Reflectance, R(dB)
-10
-20
-30
-40
-50
0
1
2
3
4
5
6
7
8
Tilt Angle, θ (deg)

FIGURE 9


θ
Silica
Substrate

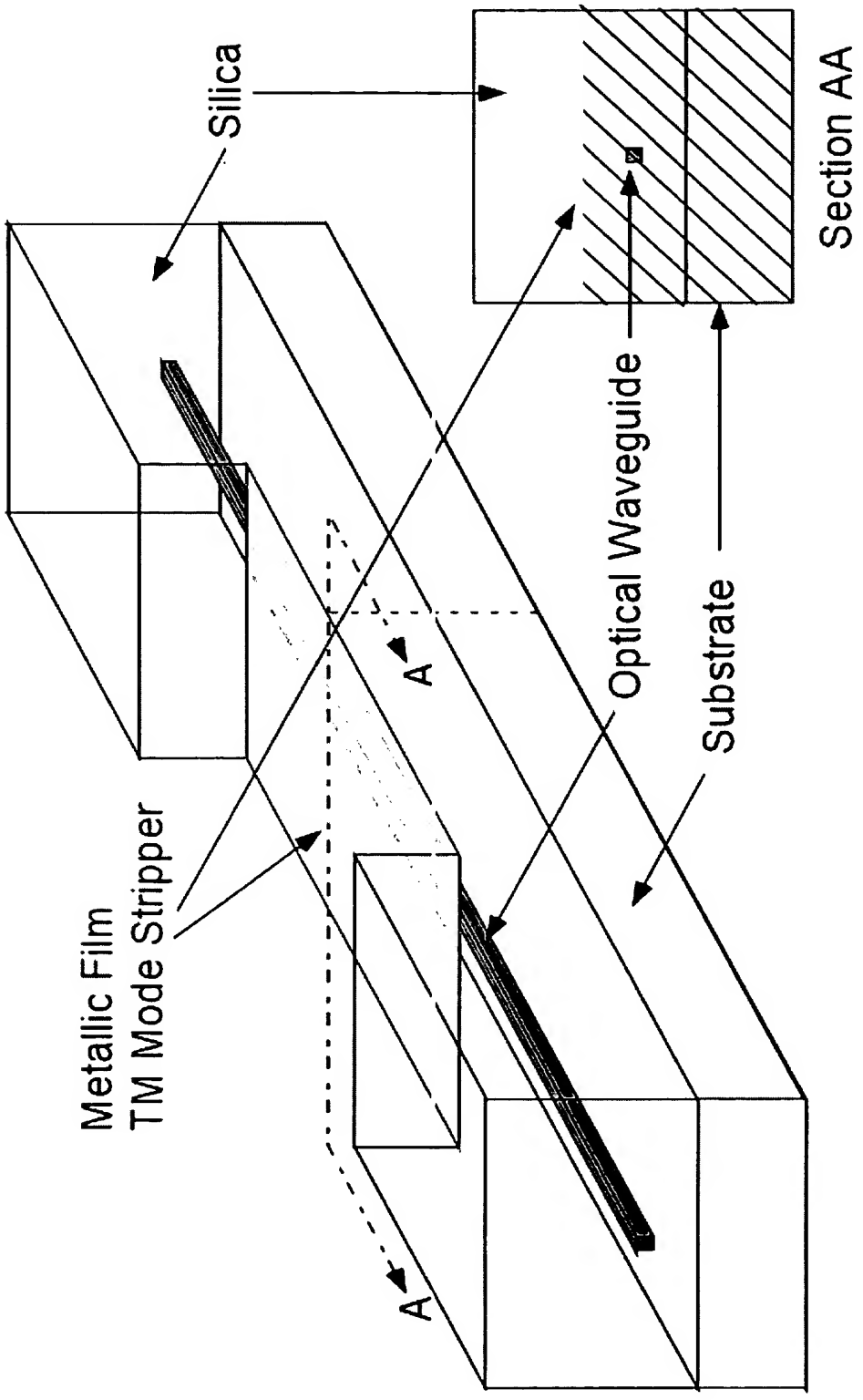

Silica
Section AA
Optical Waveguide
Substrate
A
A
Metallic Film
TM Mode Stripper

FIGURE 10

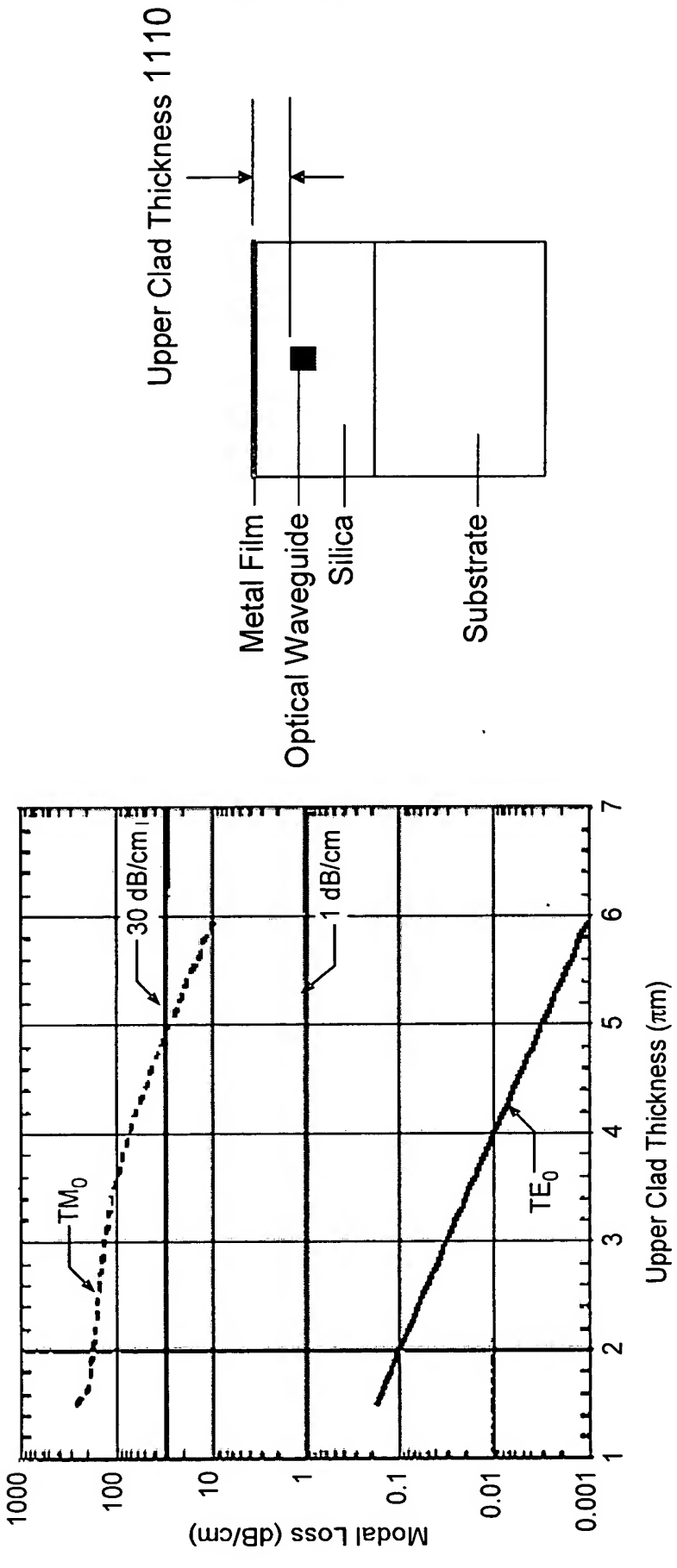

Upper Clad Thickness 1110
Metal Film
Optical Waveguide
Silica
Substrate
Modal Loss (dB/cm)
1000
100
10
1
0.1
0.01
0.001
30 dB/cm
1 dB/cm
TM0
TE0
1
2
3
4
5
6
7
Upper Clad Thickness (μm)

FIGURE 11